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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,954	04/08/2005	Kok Keong Teo	U 015715-8	3237

140 7590 02/04/2009
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EXAMINER

RUSSELL, CHRISTINA MARIE

ART UNIT	PAPER NUMBER
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2837

MAIL DATE	DELIVERY MODE
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02/04/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/530,954	Applicant(s) TEO ET AL.	
	Examiner CHRISTINA RUSSELL	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 59-65,67-78 and 80-83 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 59-65,67-78 and 80-83 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The amendments to Figures 1 and 2 have been accepted.

Specification

The amendments to pages 20, 23 and 24 of the Specification have been accepted.

Claims

The cancellation of claims 66, 79 and 84-86 has been accepted.

The previous 35 USC 112 rejections have been withdrawn due to the cancellation of claims 84-86 and the amendment of claim 63.

The previous 35 USC 101 rejections have been withdrawn due to the cancellation of claims 84-86.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 59-65, 67-78 and 80-83 are rejected under 35 U.S.C. 102(e) as being anticipated by the US patent application publication to Shih (US 2005/0086052).

3. In terms of claim 59, Shih teaches a methodology for detecting pitch values of notes in an musical sound signal, comprising the steps of identifying one or more voiced or hummed segments, comprising “stop consonant – vowel” syllables such as “da” or “la” (see paragraph [0028]), in the musical sound signal, using an energy function or measure (see paragraph [0036]), and applying a gradient-based processing, or segmentation process, which searches for and divides the notes into groups, or note segments, containing blocks, or frames, and used for searching and extracting note markers (as defined by the Applicant's Specification and as will be further discussed below). Shih further teaches deriving the varying pitches of the blocks, or frames, and deriving the pitch values of the notes by taking the median of, or clustering, the varying pitch values of the blocks, or frames (see paragraphs [0009]-[0013], [0023], [0024], [0026]-[0035], [0038], [0039], [0045]-[0055], [0057]-[0059], [0063], and [0066]).

Art Unit: 2837

4. As for claim 60, as stated above, Shih teaches a gradient-based processing or segmentation process, which uses note markers, or note features, within the frames, to divide the voiced or hummed segments into notes (see paragraphs cited above, especially [0034], [0038], [0046] and [0053]).

5. As for claim 61 and 62, Shih teaches the deriving the pitch involving a preferred length and number of the frames and feature sets within the note segments, or groups (see paragraphs cited above, especially [0034] and [0053]).

6. As for claim 63, k-mean clustering is merely classifying, clustering or grouping of "n" objects, based on attributes or features, into "k" number of groups, or partitions. This is similar to that of the Gaussian Mixture Model, since both attempt to find the centers within a cluster of data, or in other words, to find the median value. Shih teaches the use of the Gaussian Mixture Model to derive the median pitch value of the note segment using the varying pitch values of the blocks or frames (see paragraphs cited above, especially [0012], [0013], and [0051]).

7. As for claim 64, Shih teaches the use of rounding values to the nearest note value (see paragraphs cited above, especially [0048]).

8. As for claim 65, Shih teaches the use of a silence, or rest, model, to prevent errors of segmenting, or isolating, the notes (see paragraphs cited above, especially [0012], [0013], [0039], and [0066]).

9. As for claim 67, Shih teaches the step of transcription, where after the note segmentation and pitch deriving steps, the notes are extracted and transcribed into a

Art Unit: 2837

sequence of note symbols, or notational representation (see paragraphs cited above, especially [0059]).

10. As for claim 68, Shih teaches the input of the musical sound signal into a microphone, connected to a computing machine, which receives acoustic wave signals and digitizes them (see paragraphs cited above, especially [0002], [0004], and [0023]).

11. As for claims 69 and 70, Shih teaches the musical sound signal as an acoustic humming signal, inputted by a person (see paragraphs cited above, especially [0022] and [0023]).

12. In terms of claim 71-78 and 80-83, Shih teaches a system which uses the methodology described above (paragraphs [0022]). The rejection of claims 71-83 mirror that of claims 59-70 respectively, given the apparatus is inseparable from the method of using the apparatus (see references cited above).

Response to Arguments

13. Applicant's arguments filed 9/15/2008 have been fully considered but they are not persuasive.

14. The Applicant argues that Shih fails to teach or suggest applying a gradient-based processing to the voiced segments for dividing each voiced segment into one or more notes. As seen above, the Applicant's Specification (see pages 10 and 12) defines a gradient-based processing as merely a segmentation process, used to search for notes within voiced portions, while further used to search and extract note markers. It

Art Unit: 2837

can be seen from the references cited above that Shih in fact does teach a gradient-based type processing.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please see the Notice of References Cited provided by the Examiner, in particular the US patents to Tsuruta et al. (5,038,658), Sonoda (6,121,530), Ghias et al. (5,874,686), Pauws (US 2007/0162497), Zhang (6,476,308), Peevers (5,986,199), Finn et al. (US 2003/0023421), and Ando (5,936,180).

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTINA RUSSELL whose telephone number is (571)272-4350. The examiner can normally be reached on Mon-Fri, 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Benson can be reached on 571-272-2227. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christina Russell/
Examiner, Art Unit 2837
1/31/2009
/Lincoln Donovan/
Supervisory Patent Examiner, Art Unit 2816